

June 17 to June 30, 2012 (Weeks 25 & 26)

## Overall Influenza Summary

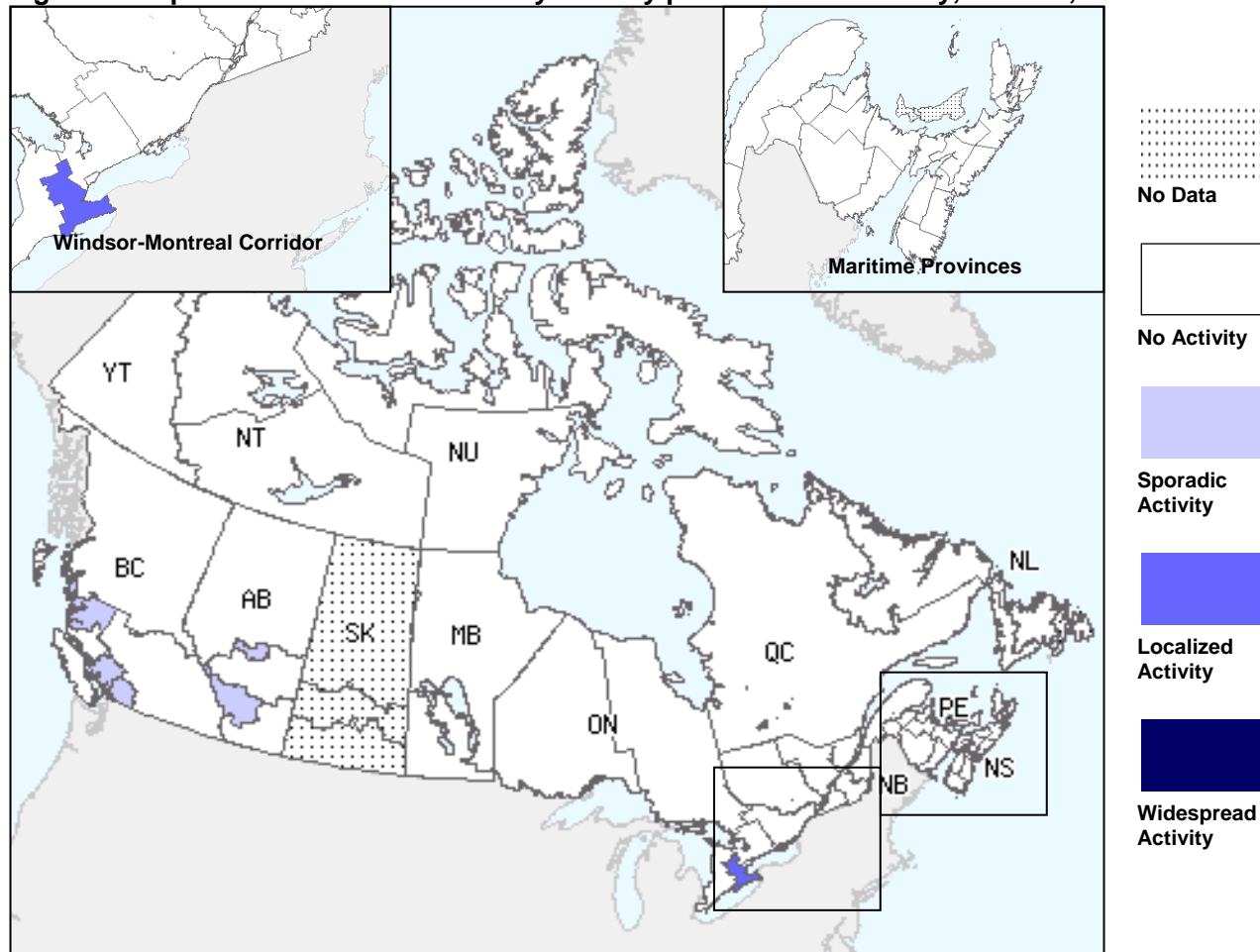
- Overall, influenza activity in Canada remains low and continues to decline. Reports of localized influenza activity were still reported in regions in Ontario and Alberta (in week 25).
- No outbreaks of influenza were reported.
- In weeks 25 and 26, a total of 43 laboratory detections of influenza were reported of which 65.1% were for influenza A viruses (85.7% - A(H3); 14.3% - untyped) and 34.9% for influenza B viruses.
- Twenty-six influenza-associated hospitalizations were reported over the two-week period (3 paediatric through IMPACT surveillance and 23 adult through aggregate surveillance)
- The ILI consultation rate in week 26 was above the expected level for this time of year and is most likely due to the circulation of other respiratory viruses.

**NOTE:** Bi-weekly reports will continue until October 12, 2012. However, laboratory detections reported through the RVDSS and influenza activity level maps will be updated weekly on the [FluWatch website](#).

## Influenza Activity (geographic spread) and Outbreaks

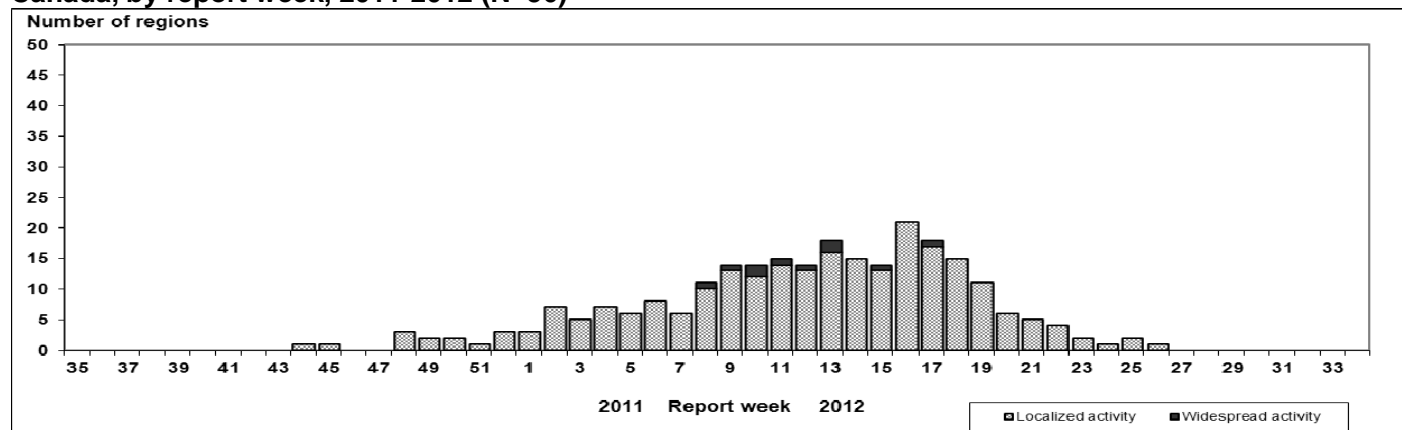
In week 25, 2 surveillance regions (within ON & AB) reported localized activity and 10 regions (within BC, AB, ON, QC, NL, YT & NU) reported sporadic influenza activity. In week 26, 1 region (within ON) reported localized activity and 4 regions (within BC & AB) reported sporadic influenza activity (see Figure 1). Note that no data was received from SK & PEI, for week 25 and no data was received from SK, NL, & PEI for week 26. No new outbreaks of influenza or ILI were reported in weeks 25 and 26 (Figure 3).

**Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 26**



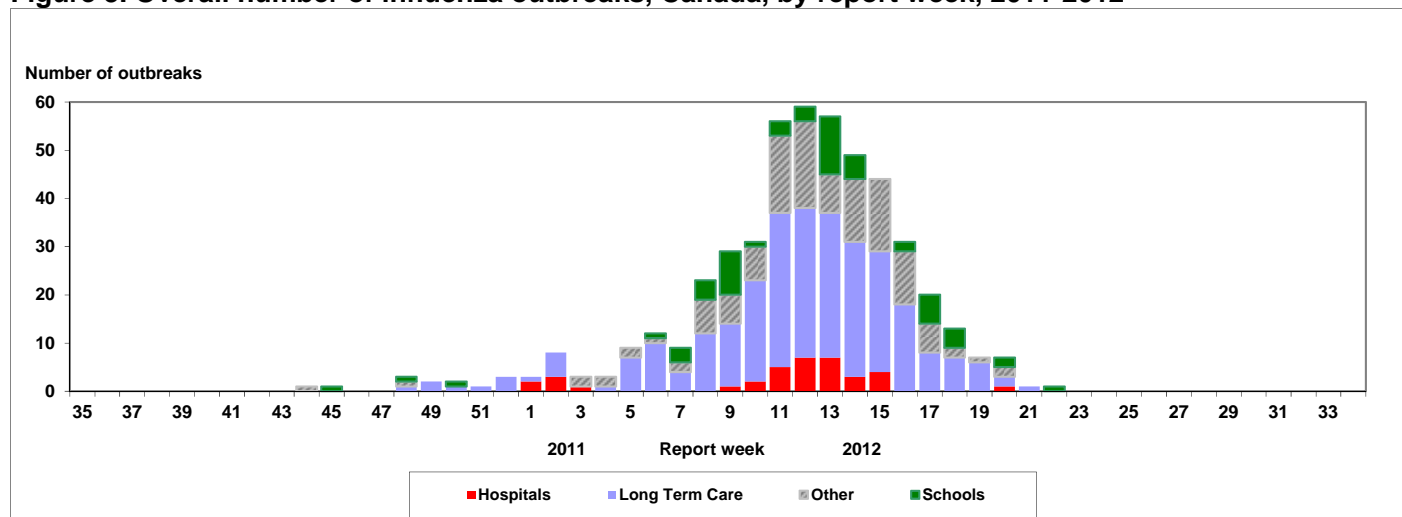
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

**Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)**



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012**



## Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests continued to decline and was 2.0% in week 25 and 1.8% in week 26 (Figure 4 & 5). The proportion of positive detections for influenza A in week 25 was 1.4% and 1.8% in week 26. The proportion of positive detections for influenza B viruses was 0.5% for week 25 and 0.7% for week 26. In weeks 25 & 26 (Table 2) the largest proportion of influenza A & B cases were  $\geq 65$  years of age (57.1% & 42.9% respectively).

Cumulative to date of influenza virus detections by type/subtype is as follows: 46.5% influenza A (41.3% - A(H3); 18.8% - A(H1N1)pdm09; 39.9% - untyped) and 53.3% influenza B (Table 1).

Detailed information on age and type/subtype were received on 1,0246 cases to date this season (Table 2). The proportions of cases by age group are as follows: 19.6% were < 5 years; 11.2% were between 5-19 years; 25.6% were between 20-44 years; 18.0% were between 45-64 years of age; 25.3% were  $\geq 65$  years; and 0.4% with age unknown. The largest proportion of influenza A cases were between 20-44 years of age (25.6%) and those  $\geq 65$  years of age (25.3%). The largest proportion of influenza B cases were in those under 20 years of age (46%) and those  $\geq 65$  years of age (22%).

The percentage positive for rhinovirus detections increased compared to the previous week (20.0% in weeks 25 & 26); the percentage positive for rhinoviruses remain the highest compared to the other respiratory viruses. The percentage positive for parainfluenza viruses has slightly decreased since week 24 and is 7.1% in week 26.

The percentage positive for the other respiratory viruses remained low in week 26: RSV-2.4%; adenovirus-2.0%; hMPV-0.7%; and coronavirus-1.3% (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada Report](#).

**Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012**

Reporting provinces	June 17 to June 30, 2012						Cumulative (August 28, 2011 to June 30, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*		A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	
BC	13	0	13	0	0	2	657	0	524	107	26	150
AB	9	0	9	0	0	7	1347	0	1034	259	54	306
SK	1	0	0	0	1	4	520	0	319	50	151	101
MB	1	0	0	0	1	0	76	0	12	9	55	244
ON	2	0	1	0	1	2	953	0	258	491	204	2759
QC	2	0	1	0	1	0	1853	0	74	97	1682	2248
NB	0	0	0	0	0	0	103	0	32	36	35	336
NS	0	0	0	0	0	0	16	0	11	1	4	93
PE	0	0	0	0	0	0	3	0	2	1	0	51
NL	0	0	0	0	0	0	118	0	68	10	40	212
<b>Canada</b>	<b>28</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>4</b>	<b>15</b>	<b>5646</b>	<b>0</b>	<b>2334</b>	<b>1061</b>	<b>2251</b>	<b>6500</b>

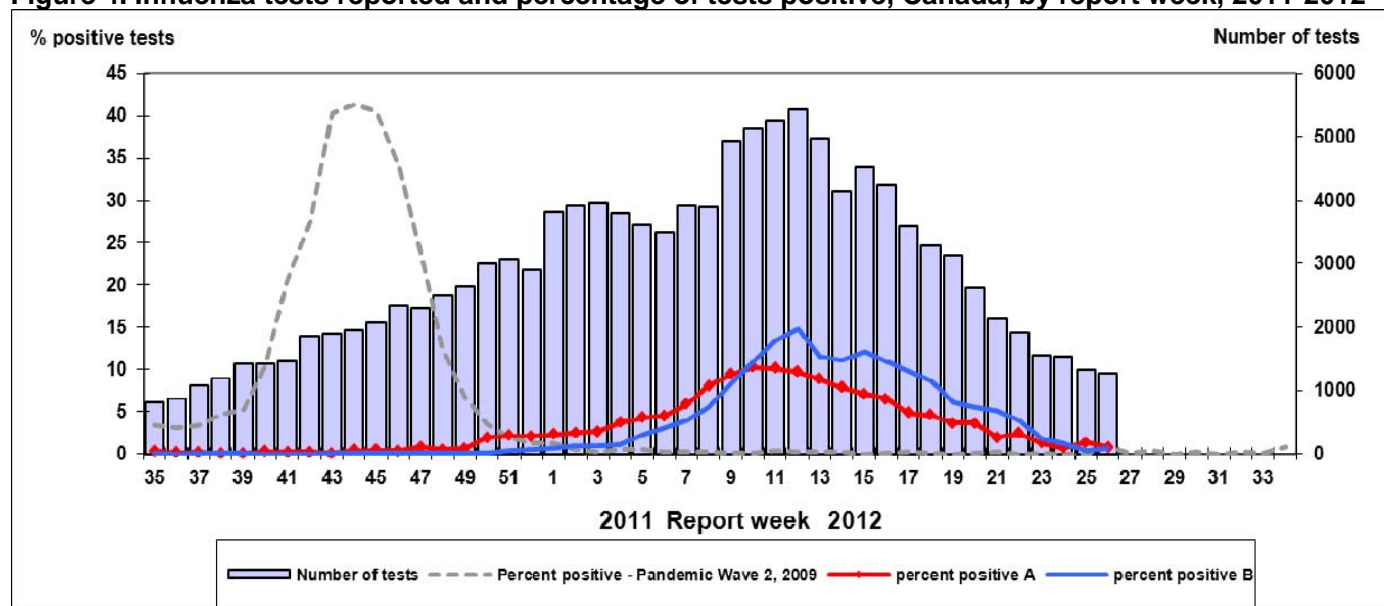
\*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

**Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012\***

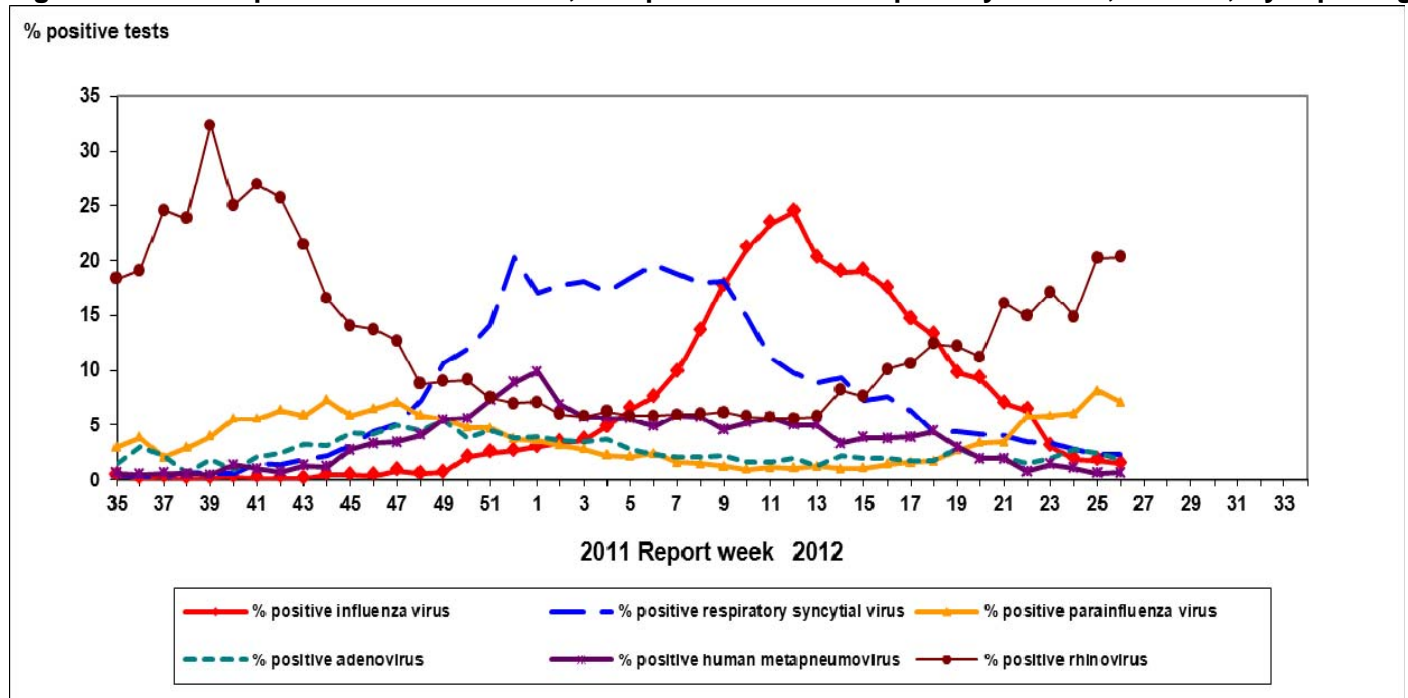
Age groups	Weekly (June 17 to June 30, 2012)					Cumulative (Aug. 28, 2011 to June 30, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped		A Total	Pandemic H1N1	A/H3N2	A unsubtyped	
<5	0	0	0	0	1	993	234	346	413	1104
5-19	0	0	0	0	0	568	86	287	195	1294
20-44	0	0	0	0	0	1296	292	475	529	956
45-64	0	0	0	0	0	903	186	314	403	700
65+	4	0	4	0	3	1280	70	769	441	1128
Unknown	0	0	0	0	0	21	6	14	1	3
<b>Total</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>5061</b>	<b>874</b>	<b>2205</b>	<b>1982</b>	<b>5185</b>

\*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

**Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012**



**Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting**

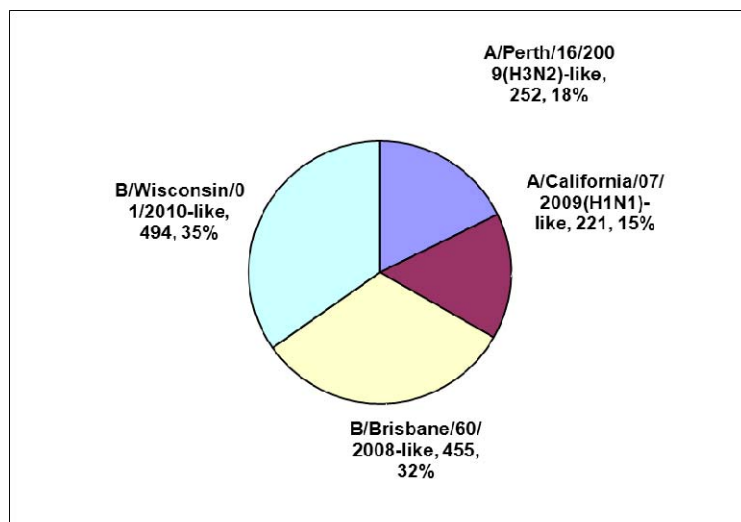


week, 2011-2012

### Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 1,422 influenza viruses (252 A/H3N2, 221 A/H1N1 and 949 B). Of the 252 A/H3N2 viruses (from BC, AB, SK, MB, ON, QC, NB, NS, PEI & NT), 92.0% (231) were antigenically similar to A/Perth/16/2009 while 8.0% (20) viruses showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 221 A/H1N1 viruses characterized (from BC, AB, SK, MB, ON, QC & NB), 97.7% (216) were antigenically similar to A/California/07/2009 and 2.3% (5) viruses tested showed reduced titer with antiserum produced against A/California/07/2009. Of the 949 influenza B viruses characterized, 47.9% (455) (from BC, AB, SK, MB, ON, QC, NB, NS & NL) were antigenically similar to the vaccine strain B/Brisbane/60/2008 (Victoria lineage); however 1 virus out of the 445 tested showed reduced titer with antiserum produced against B/Brisbane/60/2008. The remaining 52.1% (494) of the influenza B viruses (from BC, AB, SK, MB, ON, QC, NB, NS, NT & NU) were antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

**Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 1,422**



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

## Antiviral Resistance

Since the beginning of the season, NML has tested 1,457 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 1,456 for zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 783 influenza A viruses (429 H3N2 and 354 H1N1) were tested for amantadine resistance; all but 1 influenza A(H3N2) virus tested were resistant. (Table 3)

**Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012**

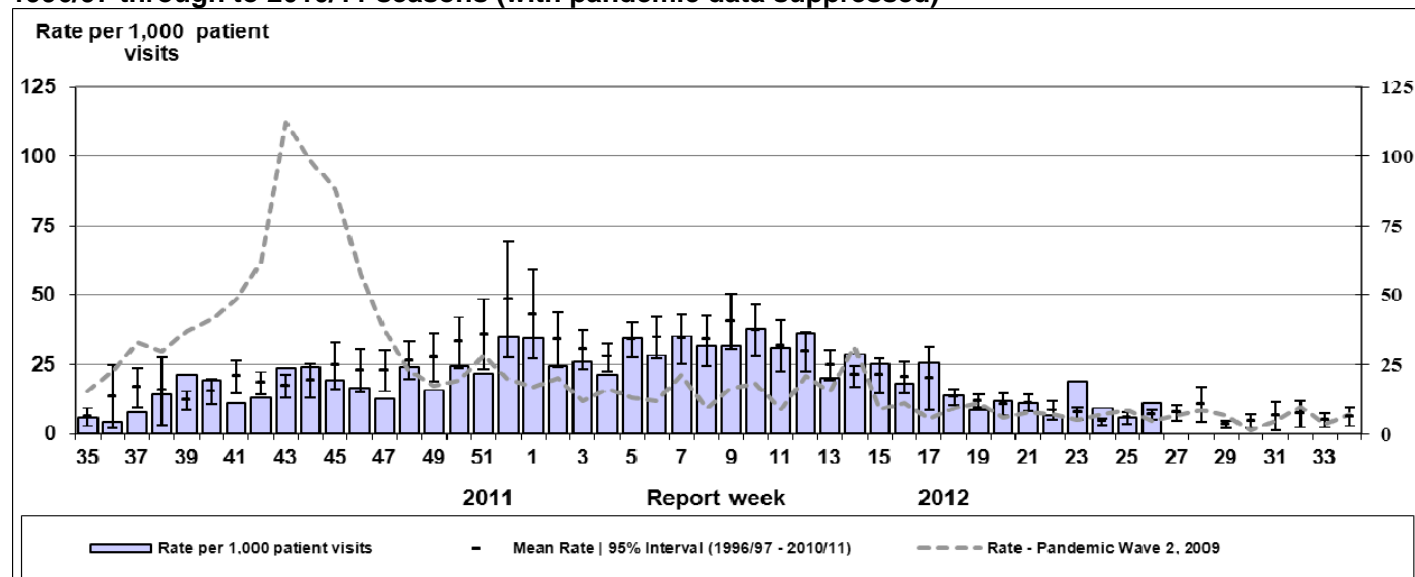
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	249	0	248	0	429	428 (99.8%)
A (H1N1)	256	0	256	0	354	354 (100%)
B	952	0	952	0	NA*	NA*
<b>TOTAL</b>	<b>1457</b>	<b>0</b>	<b>1456</b>	<b>0</b>	<b>783</b>	<b>782 (99.9%)</b>

\* NA – not applicable

## Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate decreased in week 25 to 5.9 ILI consultations per 1,000 patient visits, with the highest rates reported in YT and NL. In week 25, the ILI consultation rate was within the expected level for this time. The ILI rate increased in week 26 to 11.1/1,000 visits, with the highest ILI rates reported in MB & YT (Figure 7). In week 26, the ILI consultation rate was higher than the expected level for this time of year and is most likely due to the higher circulation of other respiratory viruses (i.e. rhinoviruses) than influenza viruses. The highest consultation rates by age group was observed in those between 5 to 19 years old in weeks 25 and 26 (11.6/1,000 and 23.8/1,000 visits respectively).

**Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)**



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

## Severe Respiratory Illness Surveillance

### Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 25 and 26, a total of 3 (2 in week 25 and 1 in week 26) new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program

Active (IMPACT) network. All hospitalizations were associated with influenza B infections (in AB & SK). No deaths were reported in weeks 25 & 26.

To date this season, 591 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, MB, ON, QC, NS & NL); 41.8% (247) were due to influenza A and 58.2% (344) were due to influenza B. The proportion of cases by age group is as follows: 14.4% among infants <6 months of age; 20.5% among children 6-23 months of age; 30.3% were between 2-4 years; 24.2% were between 5-9 years; and 10.7% were between 10-16 years. To date this season, 6 influenza-associated paediatric deaths have been reported through the IMPACT network; 83% (5) were associated with influenza B infection.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

### **Influenza Hospitalizations and Deaths (Aggregate Surveillance System)**

In weeks 25 and 26, a total of 32 (32 in week 25 and 0 in week 26) new laboratory-confirmed influenza-associated hospitalizations were reported of which 28.1% (9) were in those < 20 years of age and 71.9% (23) in those ≥ 20 years of age; 31.3% were due to influenza A and 68.8% due to influenza B. The hospitalizations were reported from AB (1), ON (31). In week 25, 1 influenza B-associated death was reported (ON) and was 45-64 years of age.

To date this season, 1,838 influenza-associated hospitalizations have been reported from 7 provinces (AB, SK, MB, ON, NS, PE & NL) and 2 territories (YT & NT); 39.1% (719) were in those < 20 years of age, 60.8% (1,118) in those ≥ 20 years of age, and 0.1% (1) of unknown age. The largest proportion of cases was observed in those ≥ 65 years of age (33.5%). Influenza B (57.4%) continues to be the predominant influenza type among hospitalized cases compared to influenza A; of the influenza A hospitalizations where subtype was available, influenza A(H3N2) predominated (60.2%). There have been 77 hospitalizations requiring ICU admission reported (from AB, SK, MB, NS & NL) of which 28.6% were in those < 20 years of age and 71.4% were in those ≥ 20 years of age. To date this season, 99 influenza-associated deaths have been reported (from AB, SK, MB, ON & NS) of which 1.0% were of unknown age, 7.1% were among those < 20 years of age and 92.0% in those ≥ 20 years of age. Of the adult deaths, 74.5% were in those ≥ 65 years of age.

Note: Some of the hospitalizations and deaths reported in those ≤ 16 years of age may also have been reported in the IMPACT summary above if the hospitalization or death occurred in one of the 12 IMPACT hospitals. The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces: BC, & QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

## International Influenza Updates

**WHO:** Worldwide influenza activity is generally low. Influenza activity in the northern hemisphere temperate regions is continuing to decrease and is now nearly at inter-seasonal levels. Some tropical countries are experiencing an increase or stable transmission of influenza viruses including countries in Central America, the Caribbean, South America and, in Sub-Saharan Africa. Influenza activity in the temperate zone of the southern hemisphere is still low (except in Australia, Chile, Paraguay and South Africa where there is a small but sustained increase in influenza A(H3N2) detections).

[World Health Organization influenza update](#)

**United States:** The proportion of tests positive for influenza viruses declined compared to the previous week and was 8.2% in week 25. Of the positive influenza detections reported between June 3 to June 23, 2012, the majority (63%) were positive for influenza B viruses. Of the influenza A viruses for which subtype information was available, the large majority (70%) were influenza A(H3) viruses. All other indicators of influenza activity remained low. [Centers for Disease Control and Prevention seasonal influenza report](#)

**Europe:** In week 26 influenza activity continues to be at out-of-season levels throughout the European Region. In week 26, only 1.4% (1/73) of the samples collected from sentinel sources was positive for influenza virus; from non-sentinel sources, only 17 samples were influenza-positive, indicating low influenza activity in the Region. Consultation rates for influenza-like illness (ILI) and acute respiratory infection (ARI) are now at low levels in all countries in the Region.

[EuroFlu weekly electronic bulletin](#)

## Human Avian Influenza Updates

No new cases of human avian influenza A/H5N1 infection were reported by the WHO since June 7, 2012. [WHO Avian influenza situation updates](#)

**FluWatch reports include data and information from the following sources:** laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

**ILI definition for the 2011-2012 season**

**ILI in the general population:** Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

**Definitions of ILI/Influenza outbreaks for the 2011-2012 season**

**Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

**Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

**Influenza Activity Levels Definition for the 2011-2012 season**

Influenza Regional Activity levels are defined as:

- 1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
- 2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†
- 3 = Localized: (1) evidence of increased ILI\* and
  - (2) lab confirmed influenza detection(s) together with
  - (3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**
- 4 = Widespread: (1) evidence of increased ILI\* and
  - (2) lab confirmed influenza detection(s) together with
  - (3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

\* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

*We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.*

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.